IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Per Beming, *et al.*	§ Group Art Unit:	2462
Application No	10/595,312	§ Examiner:	Duong, Christine
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For: Coordinated Data Flow Control and Buffer Sharing in UMTS

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APPLICANTS' REPLY BRIEF FILED UNDER 37 C.F.R. §1.193(b)(1)

In response to the Examiner's Answer having a mail date of March 29, 2011, the Applicants submit this reply brief to address the Examiner's arguments.

Rebuttal of Examiner's Answer

1.) CLAIMS 13 AND 14 ARE PATENTABLE OVER APPLICANT'S "ADMITTED PRIOR ART" ("APA") IN VIEW OF CALVIGNAC AND LIU

In responding to Applicant's arguments, the Examiner first notes that the Applicants argued that "[n]othing that the Examiner has pointed to in the teachings of Liu involves a credit-based system for regulating the flow of data between first and second radio network nodes for data to be forwarded to plural user entities via an air interface." The Examiner then states that he respectfully disagrees and, rather than pointing to any portion of Liu as disclosing that which the Applicants have argued it does not, the Examiner states that "Applicants' admitted prior art [has] been relied upon to disclose a credit-based system," referring to Figures 1-4 of the Applicants' drawings and

the corresponding sections of the specification. **Again, the Examiner fails to point to any teaching in Liu of a credit-based system according to the pending claims**. What the Examiner refers to as "admitted prior art" (APA) appears in the background section of Applicants' specification; *i.e.*, it is a description of prior art credit-based systems for which the Applicants' claimed invention solves certain problems. If the Applicants' own specification and drawings described as prior art ***all*** of that which is claimed, there would be no reason for the Examiner to look to the further teachings of Calvignac or Liu. That, however, is not the case. The Examiner's stated reasons for rejecting the claims acknowledge that the APA does not disclose at least one claim limitation. For that, the Examiner looks to the teachings of Calvignac and Liu.

For claim 13, the Examiner has repeatedly acknowledged that Applicant's Admitted Prior Art (APA) and Calvignac ***do not*** disclose distributing credits for transmission of data units ***proportionally*** **to radio channel qualities indicated by the user entities**. (See: Office Action dated April 2, 2009; Page 10, lines 1-4, and page 12, lines 4-7; and, Office Action dated August 18, 2010; Page 5, lines 10-11) To overcome that deficiency in the prior art, the Examiner has looked to the teachings of Liu, stating that Liu discloses in paragraph 0038:

> "After the transmit power for each wireless is optimized, **the base station may then select the affordable data rates for each wireless unit** according to the allocated power. As a result, wireless units having more attractive CQI values may be given preferential treatment. More particularly, the wireless units having more attractive CQI values may be **allocated more power** from the base station's resources to transmit data. In contrast, wireless units having less attractive channel conditions may be **allocated less power** from the base station's resources to transmit data." (emphasis added)

Again, the Applicants believe the Examiner reads too much into the teachings of Liu. The Applicants' invention is directed to **regulating the flow of data** between a first transmitting radio network node and a second transmitting radio network node, wherein the second transmitting radio network node receives data from the first transmitting radio network node **to be forwarded to plural user entities via an air interface**; the method of regulating requires:

> counting the instantaneous number of requested data units in each data flow to obtain a total number of requested data units;

> computing the total number of credits to be granted in each data flow by subtracting from a target buffer filling level for the total number of data flows the total number of data units currently stored in each of the buffers and the total number of credits previously given but not yet received; and,
>
> distributing the total number of credits ***proportionally*** to radio channel qualities indicated by said user entities. [emphasis added]

Nothing that the Examiner has pointed to in the teachings of Liu ***involves a credit-based system*** for regulating the flow of data between first and second radio network nodes for data **to be forwarded to plural user entities via an air interface**. More particularly, nothing in Liu relates to "distributing [a] total number of credits ***proportionally*** to radio channel qualities indicated by [ ] user entities." The Examiner merely points to a portion of Liu that describes adjusting **power levels** as a function of CQI values; after selecting such power levels, a base station can then select "affordable data rates for each wireless unit **according to the allocated power**." Even if the setting of power levels, or the selection of "affordable data rates," were considered analogous to distributing credits, as presented in claim 13, Liu expressly teaches that the selection of a transmission rate for ***each*** wireless unit "is performed in response to the CQI signal(s) of **each** wireless unit," and that "the appropriate data transmission rate for **a** wireless unit [is determined] in view of **its** CQI signal(s)." (See Paragraph 0027, and Step 50 of Figure 1). Thus, even if data transmission rates for multiple wireless units (*i.e.*, "plural user entities" as used in claim 13) is considered analogous to distributing credits to regulate the flow of data in buffers, Liu teaches setting the data transmission rate for ***each*** wireless unit as a function of ***each*** such unit's CQI values or allocated power; *i.e.*, there is no ***proportional*** distribution of data transmission rates **as a function of some value of available *credits* for *all* units (*i.e.*, user entities).**

Furthermore, as those skilled in the art will recognize, setting the transmission rate for each communication terminal according to the downlink channel quality experienced by **each** such terminal does not limit the transmission rate that can be set for **other** terminals; *i.e.*, the transmission rate set for one communication terminal does not limit the transmission rate that can be set for another communication terminal. ***In contrast***, the method recited in claim 13 (as well as claims 15 and 16) is directed to managing the limited resources, such as buffer resources, of a radio network node,

which are apportioned ***proportionally to radio channel qualities indicated by user entities*** to which data units will be transmitted; *i.e.*, granting more transmission credits to one entity reduces, proportionally, the number that can be granted to another entity. Although Liu describes setting a transmission rate by a base station based on a CQI signal transmitted by different communication terminals, it does not follow that Liu discloses "distributing [a] total number of credits ***proportionally*** to radio channel qualities indicated by said user entities;" ***to conclude otherwise is to not read the credit mechanism of Applicants' invention in the context of the claim as a whole***.

Claim 13 concludes with the limitation of: "distributing the total number of credits **proportionally** to radio channel qualities indicated by said user entities." (emphasis added). If there are a number of available credits, and they are distributed "proportionally," then granting more transmission credits to one entity will, *necessarily*, reduce the number that can be granted to another entity. The Examiner has not pointed to any such teaching in Liu and, accordingly, claim 13 is not obvious over APA, Calvignac and Liu. Furthermore, whereas claim 14 is dependent from claim 13, and includes the limitations thereof, it is also not obvious in view of APA, Calvignac and Liu.

2.) CLAIMS 15-17 ARE PATENTABLE OVER APA IN VIEW OF LIU

Applicants' prior arguments indicated that independent claims 15 and 16 recite limitations analogous to those of claim 13 and, thus, they are also distinguishable over APA and the teachings of Calvignac and/or Liu. In response, the Examiner asserts that claim 15 does not include the limitation "the total number of credits" as presented in claim 13. The Examiner's responsive argument, although correct in what it states, fails to take into account all aspects of Applicants' arguments. The relevant limitation of claim 15 recites: "distributing the number of credits given by the second transmitting radio network node proportionally to radio channel qualities indicated by said user entities to which the second transmitting radio network node is scheduling radio transmission of data units." That limitation differs from the corresponding limitation of independent claims 13 and 16 in that it does not include the term "total" before "credits." The presence, *vel non*, of the term "total," however, is not critical to Applicants' arguments. Liu fails to disclose ***any*** credit-based mechanism for distributing available credits

proportionally. As argued *supra*, even if data transmission rates for multiple wireless units (*i.e.*, "plural user entities" as used in claim 13) is considered analogous to distributing credits ***to regulate the flow of data in buffers***, Liu teaches setting the data transmission rate for ***each*** wireless unit as a function of ***each*** such unit's CQI values or allocated power; *i.e.*, Liu fails to teach the ***proportional*** distribution of data transmission rates ***as a function of any value of available credits***. Therefore, the Examiner has again not established a *prima facie* case of obviousness for claim 15.

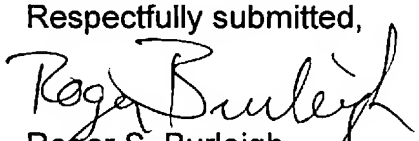
With respect to Applicants' arguments with respect to independent claim 16, the Examiner maintained the rejection solely on the basis as presented with respect to independent claim 13. Thus, for the reasons presented *supra* with respect to claim 13, claim 16 is not obvious over the cited prior art. Furthermore, whereas claim 17 is dependent from claim 16, and includes the limitations thereof, it is also not obvious in view of the cited prior art.

* * *

CONCLUSION

As established by the arguments in Appellants' original brief, and further elaborated herein in response to the Examiner's Answer, claims 13-17 are patentable over the prior art of record, and the Applicants request that the rejections thereof be reversed and the application be remanded for further prosecution.

Respectfully submitted,



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